

REPORT OF FOUR MONTHS' OPERATIVE WORK AT THE NEW YORK HOSPITAL.¹

[CONCLUDED.]

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IN the genito-urinary subdivision of operations on the trunk there were twenty-four cases. Among these was one of *varicocele*, treated by a method which has been suggested by me elsewhere as suitable for varicoceles of large size—that is, by ablation of the scrotum and subsequent ligation of the veins, which are then exposed and easily accessible, care being taken not to tie the venous plexus accompanying the vas deferens.²

Besides this, two cases of *double hydrocele* were treated by Volkmann's method, as they were considered too large to be cured by the carbolic acid injection of Levis, which is still considered the best treatment for a hydrocele of ordinary size, or even for one of large size, if it is first diminished by a preliminary tapping.

Double castration was performed in one instance for tuberculous disease of both epididymes and testes, which had resisted the usual treatment (including scraping with the sharp spoon and subsequent packing with iodoform), and the patient insisted on being relieved of them. Enough of the diseased scrotum was preserved to give the parts a semblance of their original condition. Notwithstanding the fact that pains were taken to excise them as high as possible, it was found that the vas deferens on the left side was filled with cheesy pus. No deposits existed in the prostate, nor were there any renal or pulmonary symptoms.

Amputation of the penis for epithelioma was performed once, in a man æt. sixty, the organ being removed close to the scrotum by a single sweep of a long knife, the incision running obliquely so that the corpus spongiosum was left longer than the rest of the structures. The portion

¹Read before the New York Surgical Society, Feb. 9, 1887. Concluded from Vol. V., p. 517.

²On "Varicocele." "Med. Record," March 20, 1886.

of the urethra that remained was divided in a downward direction for a distance of half an inch, and the mucous membrane and skin were sewn together. All bleeding vessels in the corpora cavernosa, and elsewhere, were ligated with catgut, and then the edges of the sheath of the penis were united by several catgut sutures, the skin being also sutured over this. A catheter was introduced into the bladder (as the man had been in the habit of using one on account of his having an enlarged prostate), and the stump of the penis, covered as it was by skin, was inclosed in an iodoform dressing secured by a firm bandage, through which the catheter projected, to end in a glass urinal.

Primary union was obtained. This was unusual and was to be attributed to two things: the easy retention of the catheter, and the compression, as well as the final arrest of the usual persistent oozing, by the union of the edges of the fibrous sheath of the penis. A row of glands in the left groin was also extirpated, as advised by Küster, but under the microscope these were found to be enlarged simply from inflammation. Their removal, however, added nothing to the difficulty or risk of the operation, and should, in my judgment, be undertaken in every case.

Internal urethrotomy for deep and tight urethral strictures was practiced in nine cases, in two of which a single perineal fistula existed. In two other cases, in which multiple perineal fistulae were associated with an urethral stricture, *external urethrotomy* was performed, and in one instance, where a fistula communicated with the rectum, about one inch and a half from the anus, the perineal wound was purposely extended so as to divide the bridge of rectal tissue, with a satisfactory issue. In all the urethral operations it is the custom to smear the hair of the pubes and perinæum with iodoformized oil (four grains to the ounce of fluid cosmoline), and to inject a small syringeful of the same into the urethra before any instruments are introduced into the canal. All these latter are greased with iodoformized vaseline (a drachm to the ounce), which is less subject to chemical change than the oil. For the division of deep and even tight anterior strictures I rely on Maisonneuve's urethrotome, the blade of which (cutting upward) I have had enlarged to a breadth of eleven millimetres; even with this a cut made in the usual manner will enlarge the canal only enough to admit a No. 26 French sound, but, by twisting the handle of the instrument as it is withdrawn from beyond the already divided stricture, a second incision may be made in the roof of the urethra. By this means enlargement to 32 or 34 of the French scale, and sometimes greater, can be attained. If any considerable anterior obstructions are met with, they are removed by Otis's urethrotome.

After everything has been divided, including the meatus urinarius, the urine is drawn, and the bladder is washed out several times with a 1-to10.000 bichloride solution, and the urethra is also freely irrigated with the same as the catheter is withdrawn. If any anterior strictures have been divided, the penis is firmly bandaged, and the patient is given two or three times during the first twenty-four hours one-eighth of a grain of morphine with from three to five minims of tincture of aconite root. No instrument is passed until four to seven days have elapsed, and not even then if there is any elevation of temperature. In this way urethral fever has been practically abolished, and for this reason this method of procedure has been detailed at length. Before leaving the hospital every patient with stricture is provided with a proper sound and is taught its use.

External urethrotomy was performed in a case of recent *rupture of the urethra*, which is caused by the patient's falling astride of a step-ladder, by cutting into a mass of extravasated blood, in which were found the torn, jagged ends of the membranous urethra. The proximal end of the urethra was more clearly recognized after the prolonged use of a hotwater douche, which stopped the oozing of fresh blood and also washed away the obscuring clots etc., when the urethra appeared white and sharply defined.

This expedient I had found useful in several other cases in which difficulty had previously been experienced in distinguishing the position of the urethra. The prompt employment of an incision in cases of ruptured urethra is well recognized as one of the decided modern improvements in surgery.

The patient in question did well.

Lateral cystotomy was performed once for the relief of an obdurate cystitis (not of the tubercular origin, as shown by frequent microscopical examination for bacilli), which followed a stricture, and had been unrelieved by an internal urethrotomy which had satisfactorily widened the urethra. This is to be preferred to the median cystotomy, as the drainage of the bladder is more thorough. In the median method, a tube carried into the bladder to continuously drain it is not always well borne, though I have had better luck when the tube has been passed in on the third or fourth day after the first traumatic effects had passed off, than when inserted and left in at the time of operation. This case is not yet completed, though the improvement is marked; at the end of three weeks a tube was inserted, as the wound was rapidly closing.

One case of *litholapaxy* for a phosphatic stone, weighing one hundred and ninety grains, with a uric-acid nucleus, can be reported in

a youth of sixteen. Bigelow's large lithotrite was used. Recovery was rapid.

Of more interest was a case of *suprapubic cystotomy for supposed tumor* which operation was done in a young man of twenty-four, who had been passing bloody urine for eight months previous, with moderate pain and increased frequency.

There was no enlargement of the prostate nor renal tenderness detected. A searcher in the bladder failed to touch a calculus. No renal elements were found in microscopically examining the urine, nor was any portion of a tumor cast off, though repeated search was made among the many small clots passed. His pain in the bladder on sudden motion became more marked, and he was early in December last placed under ether, and the bladder thoroughly examined by the bimanual method, also by the sound and lithotrite, and also by Bigelow's aspirator. No calculus was found, nor were evidences of a tumor obtained. One mass removed showed a small collection of shapeless epithelial cells, but no stroma. It was decided to explore the bladder by the suprapubic incision; this was done December 23, after the rectum had been distended with a bag holding eight ounces of water,¹ and then the bladder was first filled with six ounces and a half of 1-to-100 carbolic acid solution but, as no distinct elevation of the bladder above the pubes could be felt, three ounces and a half more were slowly introduced, when the top of the bladder was lifted one inch and a half above the bone. The bladder was reached by the usual incision, and was opened with but little hæmorrhage. The exploring finger did not find any calculus nor any tumor, as was expected. Inspection of the bladder was rendered difficult by the great rigidity of the strongly developed recti muscles, acting as they did more than usual, owing to the difficulty in maintaining perfect anæsthesia. By introducing blunt retractors into the bladder wound, and by raising the heels of the patient over an attendant's shoulders, as suggested by Trendelenburg, I was enabled to secure, with the additional aid of a small portable electric light, a very good view of the bladder. Only an intensely congested and easily bleeding mucous membrane was seen. No attempt was made to sew up the wound, which was packed lightly with sticky iodoform gauze, after a drainage-tube had been inserted; the patient was turned on alternate sides for three days, when the tube was also removed. No reaction followed the operation, but bloody urine continued to be passed,

¹ See remarks on this point in "Medical News," December 4, 1886.

and two weeks later, the wound still admitting a finger, the patient was again etherized with the idea of isolating the mouths of the ureters, and thus ascertaining whether the hæmorrhage came from the kidneys or not. This was soon proved to be a difficult affair; the use of various endoscopic tubes and mirrors, and even a long but narrow glass speculum, was inefficacious in furnishing the desired view, and the insertion of, and dilatation by, Peterson's rectal bag with seven ounces and a half of water, while it brought the base of the bladder one inch nearer the surface and closer to the pubes, did not serve to permit the recognition of the orifices of the ureters. The hindrance was, as before, mainly due to the difficulty of overcoming by ether the strong resistance of the well-developed recti muscles. It was, however, seen that the lower part of the bladder was studded over with a number of elevations the size of hemp seed, which bled freely when rubbed by an instrument. Three weeks later the suprapubic opening closed, and the patient's urine is becoming less bloody, but the diagnosis of the case can hardly be considered as made. He still remains under observation.

On the *kidney* a series of important operations have been resorted to. The first case of the number to which your attention is asked is one of

Laceration of the kidney, with perinephritic abscess and renal fistula, which occurred in a youth of twenty, who, three years before coming under my care, had fallen a distance of six or eight feet, and struck his right side heavily on an iron bar. He had following this severe hæmaturia for three weeks, when fever, local pain, swelling, etc., showed that suppuration was progressing in the right lumbar region. An incision was then made by my colleague, Dr. W. T. Bull, and a large amount of pus was evacuated. A sinus persisted for a long time, which healed at times, but would break out again and freely discharge matter. Since July last he has been unable to get about by reason of the pain in the flank and also in the rectum. In the left iliac fossa was found much inflammatory hardness and tenderness, running upward to a large fistulous opening between the middle of the iliac crest and the ribs. Through the opening a probe could be passed nine inches downward to the iliac fossa. Above the opening, nearer the spine, was another, through which a probe entered four inches toward the kidney. From four to six ounces of pus were daily discharged. The patient was pale, but in fair condition, and was anxious to have relief from the persistent suppuration. By the rectum nothing could be felt. The urine was slightly albuminous, but otherwise the exam-

ination was a negative one, with the exception of a few pus-cells. The amount discharged per diem was between fifty and sixty ounces. No urinary salts were found in the pus discharged from the fistulæ. A curved incision, starting from the upper fistula and running through the lower one, and anterior to it (somewhat like the one advised by Koenig), was used to expose the parts; but the tissues were so matted together by old inflammatory action as to yield but little room for manipulation. Instead of finding myself (as the way was finally enlarged by stretching and cutting) in the expected cavity of a suppurating kidney or thickened perinephritic abscess, I came down upon a thin-walled cavity, larger than my fist, through which could be easily felt the movements of the abdominal viscera beyond. Moderate bleeding occurred from the cavity, and it was temporarily stopped with sponges, while the fistulous track in the groin was opened at its terminus, just above Poupart's ligament. A second track was then found, running from the first downward to the pelvis, but too far back to be tapped. A drainage-tube was placed in each of these tracks, the sponges were removed, and the cavity was inspected with the aid of the electric lamp. This disclosed to me that a rent three inches long had been made through the membrane, so that the liver and gall-bladder were plainly exposed. This probably would not have been detected had it not been for the lamp. It was sewed up by catgut sutures. Careful examination by myself and my colleagues failed to find any remains of the kidney, which I also sought for through the peritoneal opening before it was closed. The exposed cavity was packed partly with iodoform gauze, but mainly with sublimate gauze, and the usual peat-bag and other antiseptic dressings were placed over all. Death took place four days later, with marked rise of temperature about forty-eight hours after the operation, followed by persistent vomiting and almost total suppression of urine. At the autopsy there were no signs of peritonitis; the left kidney was in a condition of acute suppurative interstitial nephritis, and on its surface, underneath its capsule, pus was diffusely distributed. At the upper border of the tenth rib on the right side, surrounded by dense connective tissue, was seen the upper third of the right kidney, its lower two-thirds having been destroyed. This kidney-stump formed the upper limit of the abscess cavity, which had been opened at the operation. In it were found two sponges which had been left *in situ*, one of which was firmly adherent. It should be stated that on the day of his death, the date of the last dressing, the wound was in an odorless condition. This cavity was bounded internally by the duodenum and spine, anteriorly by the ascending colon

and hepatic flexure, and below it communicated by a tortuous sinus with a pus cavity in the true pelvis, behind and alongside of the bladder and rectum, and it extended also through the right sacro-sciatic notch, and terminated exterior to this in a cavity the size of a hen's egg.

The second case of renal surgery was one of huge suppurating kidney, for which *nephrotomy* was done.

The patient, a man, æt. thirty-seven, had, strangely enough, had symptoms of trouble in his side for four weeks, and these were of moderate severity, but were associated with great weakness and rapid emaciation, but no chills nor any special urinary manifestations. In the right flank was a painful tumor the size of a cocoanut, half way to the ilium, with a deep sense of fluctuation, which the corroborative use of a hypodermic needle proved to be from retained pus. An incision was made (under the idea that the swelling was more probably a perinephritic abscess) from the distal end of the twelfth rib downward, and, instead of reaching evidences of inflammatory thickening as the cut was deepened, only the translucent peritoneum came into view, through which was seen the tumor moving perceptibly up and down under the action of the diaphragm. An incision at right angles to the first, and running toward the spine up to the quadratus muscle, soon exposed the tumor more safely in another place, when its purplish color proved it to be a hugely distended kidney. It was not washed out, but two large rubber drainage tubes were inserted, and the wound was dressed antiseptically. Though the discharge at first was very free, and required frequent changes of the dressing, it has of late rapidly diminished, and the patient's condition has correspondingly improved, though at times a strong urinous odor is perceived in the discharge. The cavity was washed out afterward with Thiersch's boro-salicylate solution, as being safer than a carbolic or sublimate solution.

The case, however, that excited the most interest in the whole of the present operative group, from its nature, treatment, and result, has been one of *abdominal nephrectomy* for a huge *adenoma*, a disease which has necessitated removal of the kidney in only one (Czerny) of Gross's collection of forty-nine cases of nephrectomy for neoplasms. Another has since been published by Albert. In Czerny's¹ case the right kidney was involved in a child eleven months old. Death took place from peritonitis on the second day. In Albert's² the patient

¹ "Deutsche med. Wochenschrift," 1882, No. 32.

² Brodeur, "De l'intervention chirurgicale dans les affections du rein," 1886, p. 222. Also "Wiener med. Presse," 1885, No. 9.

was a woman of forty-one, who, two years before, had had a fall, followed by frequent hæmaturia. Pawlik catheterized the ureters, and made the differential diagnosis. The tumor, as large as a child's head, was extirpated by a posterior incision, and the patient recovered. A third successful case is also reported by Schönborn¹ in a child aged two years.

A burly man, aged thirty-five, a butcher, was suddenly seized, two years since, with cutting pain in the left lumbar region, and at that time passed a quantity of bloody urine; this was probably an attack of renal calculus, for other paroxysms came on with not very long intervals, and he frequently noticed that gravel was passed, and indeed he showed me some fifteen or twenty calculi, principally phosphatic in character, when he was first brought to me by his physician, Dr. Maynard, of this city. In the past year, however, these intermittent attacks have culminated in a persistent pain in the left lumbar region, which is aggravated by sudden motion—by riding, etc., jolting will, moreover, bring on or increase his hæmaturia. He has lost flesh in the last six months, and he has become blanched from loss of blood. In the left flank is to be felt a tumor, running from three inches external to and on a level with the umbilicus, upward and backward under the ribs. This is slightly movable on bimanual examination; the mass seems to be nearly seven inches thick. The amount of urine passed varied from thirty-five to sixty ounces *per diem*, and, on examination, showed nothing beyond what might be due to the blood mixed in it. Under the idea that kidney enlargement might be due to retained calculi, an exploratory vertical incision, as for *nephrectomy*, was made in the left loin December 11, 1886, and the kidney, covered only by a thin layer of its fat capsule, was exposed by tearing through this. No calculus could be felt, though the posterior surface was pretty thoroughly palpated, and the anterior surface only to a limited degree. A puncture with a needle was made in several places, but did not discover any calculus nor any cavity. The bleeding from the punctures was free, but was soon checked. The examination also showed that the kidney was too much enlarged to be removed by the usual lumbar incision.

It was determined to do nothing further for him at this time, but, when the lumbar wound should have healed, it was decided that the tumor (for the diagnosis made was that of probable sarcoma) should be extirpated by abdominal section. And in the meanwhile, as

¹ De Jong, "Beiträge zur Nieren-Extirpation," Heidelberg, 1885. Also "Centralblatt f. Chir.," 1885, S. 24, Beilage.

a corroborative diagnostic means, the quantity of the urea daily passed was estimated a number of times, as had been suggested by Thiriar, who had noticed that in malignant growths this secretion was materially lessened. It was found in the patient's case to have fallen to between 219 and 240 grains *per diem*. On the twentieth day of January, 1887, the patient was again etherized, and by an incision 5 inches and a half long, to the outer side of the left rectus muscle, and starting from the free edge of the ribs, the abdomen was opened, and, after palpating the other kidney, the intestines were pushed aside with large, flat sponges, the peritoneum covering the tumor was incised to the inner side of the descending colon, and the affected kidney was exposed. A few minutes' dissection with the finger allowed the root of the kidney to be reached, when this was easily surrounded with a heavy silk ligature, by means of Mott's aneurism needle, and the vessels and ureter were tied off *en masse*. A heavy clamp was then applied between the ligature and the kidney, and the latter was cut away, and, after some tedious tearing of cicatricial adhesions on its posterior surface resulting from the first incision, it was finally removed. The clamp was found to have slipped, and to have allowed a vein, which had entered the kidney above the ligature to bleed freely. This showed most happily the control the anterior incision gives in this respect. The bleeding vessel was distinctly seen, and was in a moment controlled by a fresh clamp and ligated. Very little blood was lost, though during the stripping process, which was conducted between the capsule and its fibro-adipose envelope, for a short time quite a smart oozing of venous blood took place. A long dressing-forceps was then forced from in front through the old cicatrized track to the loin, and a large-sized rubber drain was carried in from this point to the cavity left after the extraction of the kidney. The divided and torn edges of the peritoneum which had covered the kidney were united by numerous Lembert sutures, thus inverting the edges, and, after a final toilette of the peritoneal cavity (but only so in name, as nothing had entered it, it having been so thoroughly protected by the sponges), the parietal peritoneum was sewn together with catgut and the abdominal wall was closed by silver wire sutures, supplemented by additional ones of catgut. As some oozing of blood persisted from the drainage-tube, several yards of sublimate and iodoform bandage were stuffed into the posterior cavity, and over all peat-bags and other antiseptic dressings were applied. The patient's progress was extremely satisfactory; there were no peritoneal symptoms, and only a persistent gulping for seventy-two hours. No attempt was made to introduce food into the stomach, and for a week

nourishment was administered by the rectum. The highest temperature by the mouth was 101.7° . The urine for the first twenty-four hours amounted to but eight ounces, and it was very bloody, due probably to the operation of the removed kidney. In the second twenty-four hours it was twenty ounces and was of a dark amber color, with only traces of blood in it; urea 1.01 per cent., specific gravity 1.020. On the third day it amounted to forty-nine ounces, and on the fourth to eighty-eight ounces, after which it gradually subsided, and about fifty ounces are now passed, but the urea still keeps lower than normal, but there is more than before the operation. On the sixth day the dressings were changed, and the wire sutures were removed from the anterior wound, which had healed primarily, and from the posterior opening the gauze was pulled out, everything being sweet and aseptic. To-day (February 8) the patient is sitting up out of bed, is eating heartily, and is on the road to health.

An episode occurred at the termination of the operation that excited some anxiety. On telling the nurse to count her sponges at the close of the operation, she reported that there were two flat ones missing, there being seven instead of the nine original ones; on a second count the same result was had, and this original number was corroborated by the superintendent of the training-school, who was present. The wound, which was then partially closed, was opened, the hand was introduced, and the abdominal cavity was explored, and Dr. Bull, who was assisting me, was requested to verify the search. No sponges were found in this examination, and the closure of the wound was proceeded with. The means for caring for the soiled towels, etc., and for washing the sponges, seemed to be so exact, and there seemed to be so little possibility of the missing sponges being lost anywhere else than in the patient's belly, that I felt much concern during the first three or four days on this point, being prepared, on the first symptom of peritonitis fairly manifesting itself, to reopen the abdominal cavity and resume the search. This feeling was present because, though an examination was found to be negative when made by two surgeons, yet I was conscious of the difficulty of absolutely excluding their presence, as I could not be certain of such regions as beyond the lesser omentum and behind the liver. Events proved, however, that the sponges went elsewhere, although the possibility of the organization of aseptic sponges may be insisted upon by some.

The kidney, when removed, weighed twenty-one ounces, and measured nine inches by five and a half. Its shape was rendered irregular by several projections from its surface, which were marked on its posterior

aspect. While the kidney itself is much enlarged, there can be seen after section that its substance has been invaded by a neoplasm of the size of a fist, encroaching upon, but not bursting by ulceration into, the pelvis. The mucous membrane of the latter is thickened, and up to the point where it was severed from the ureter, numerous miliary granules were found beneath it. Uninvolved kidney-tissue was found between the ligature and the tumor. On examination by the microscope, made by Dr. Peabody, the pathologist, the tumor "seemed to be nowhere continuous with the kidney tissue, but to be separated from it by a well defined capsule. In the more recently developed portions of the tumor an indistinct stroma of connective tissue may be made out, inclosing alveoli that are lined with cuboidal cells. The stroma itself is very rich in young cells, and its vessels are large and thin-walled. Older parts of the tumor show very delicate fibrous stroma, and also contain many round and spindle cells inclosing alveoli, some of which are large enough to be seen with the naked eye, while others are of microscopic size. The alveoli are lined regularly with flat epithelium, and occasionally contain colloid material. They are nowhere filled with cells. From the sides of many of these alveolar walls buds of connective tissue covered with epithelium project into the alveoli, and there either terminate freely or effect a union with similar buds projecting from an opposite wall. Not many vessels are seen in the fully developed parts of the tumor. In sections from different parts of the kidney, not actually invaded by the tumor, the effects of prolonged pressure are seen; also small, round cells occur abundantly in sharply defined aggregations. Diagnosis; adenoma."

To be added to this eminently satisfactory case is another of *laparotomy for perforation of the appendix vermiformis*, done on probably the fourth day after the fecal extravasation, with a fatal result, and already reported to the society.¹ A third case of *laparotomy* in a married woman, æt. 35, is also to be reported. It was performed for the arrest of severe hæmorrhage due to a *uterine fibroid* reaching nearly to the umbilicus. The uterine appendages (normal tubes and ovaries) on each side were tied off and removed, and the operation was completed smoothly and quickly, and under all antiseptic precaution. Peritonitis, however, carried off the patient on the fourth day.

A fourth case of *laparotomy* has much more interest, as it was performed upon a married woman of 40 who had had a centrally situated abdominal tumor for several years, which she had been told

¹"Medical News," January 15, 1887.

by a distinguished gynecologist was a fibroid, who added that she should never let any surgeon touch her.

Five days prior to entering the hospital she had been seized with severe abdominal pain, with fever and slight vomiting; when seen there was dulness running up from the pubes to the umbilicus, which rounded out, apparently a fibroid; *per vaginam* the lower part of the uterus could be mapped out, but the upper part could not. It was thought unwise to introduce the uterine probe. Pulse, 120; temperature, 102°; and belly moderately tympanitic, except over the tumor and toward the right iliac fossa, where, however, no fulness could be felt. A fine exploring needle was passed in by the house physician, Dr. Vought, and a small quantity of sero-pus was drawn out. The patient was accordingly transferred to the surgical division for operation, as it was supposed to be suppurative peritonitis with a large uterine fibroid. The patient, however, adhered to the injunction given her, and refused to have any surgical interference until twenty-four hours later, during which time her pulse rose to 140 and her temperature to 104°, and her general condition was much deteriorated. After the antiseptic washings had been done, a median section, running from the umbilicus to the pubes, showed that a suppurating cyst, rising nearly to the transverse colon, of the size of a muskmelon, containing horribly fetid gas and pus, existed, the origin of which could not be made out, it being lost in the uterus, nor could both of the ovaries be located. Whether there was a suppurating ovarian cyst or a fibro-cyst of the uterus could not be distinguished. The treatment was clear—*i. e.*, to fasten it to the lower angle of the wound, after drawing out as much as could readily emerge, and to close up the remainder of the abdominal wound. This was done, securing the sac not only with sutures to the peritoneally lined abdominal wound, but also with two transverse pins, and then the sac, which had only been previously tapped to empty it of its gas, in order to allow easier handling, and then had been tied up again, was freely opened with the patient on her side, and was thoroughly washed out with 1-to-40 carbolic solution, and drained by a large glass tube carried through a mass of iodoform gauze. By washing out the sac cavity with 1-to-100 carbolic solution every three hours, the patient went along smoothly, with falling temperature and pulse, until the fifth day, when from a normal temperature it quickly rose to 103°. This was thought to be due to a mural abscess on each side of the wound, which was freely opened, cleaned out, and packed with iodoform gauze. The edges of the sac seemed to be adherent, but had sunk, after removal of the pins on the

third day, quite deep in the wound. Some foul-smelling gas came out during this washing out of the suppurating cavity, and the next morning the vagina was found filled with feces. The patient rapidly succumbed forty-eight hours later, with signs of general peritonitis. The autopsy showed that the operative diagnosis was wrong. The cyst was Fallopian, and communicated by old openings with the rectum and bladder. The drawing up of the sac into the wound apparently made these openings more direct and patent. Peritoneal infection was probably late, for at the operation none was recognized. The size of this pyosalpinx was much beyond my previous knowledge.

THE SURGERY OF THE EXTREMITIES comprises thirty-two operations. Among these, eleven were for necrosis, five of the femur, two of the tibia, one of the fibula (external malleolus). One of the os calcis, one of a beautiful central necrosis) accidentally omitted in the foregoing pages) of the sacro-iliac synchondrosis, where a large mass of separate dead bone was taken away by extensive chiseling. There was one of the lower end of the humerus, involving the elbow, which was *resected*, resulting in good motion. One case of *resection of the entire tibia* was made in a boy of thirteen, who had suppuration progressing in the leg for over six weeks, and in whom the tibia had been largely exposed by incisions made for his relief in another hospital.

On his admission to the New York Hospital the knee joint was found to be involved, and, as an amputation was declined, the joint was opened and drained and the tibia found to be loosened in its sheath, so that but little chiseling and cutting sufficed to remove it from one epiphysis to another. The ankle joint was also involved in the suppuration. The patient's weak condition did not bear the shock of this operation, more severe, however, in appearance than in reality. The sawn bone showed several separate purulent depots and extensive infiltration of acute inflammatory processes.

I venture, notwithstanding the length that my paper has assumed, to make a remark concerning the subject of *necrosis of the lower end of the femur*. I have made myself, and have seen others make, an error in treating this affection, that I think I have now learned to avoid. The point is, when much thickening exists at the lower end of the femur, not to be content with the removal of the piece of exposed dead bone that may be seized and extracted, but to boldly chisel into the thickened end of the bone, even though no opening is found running into it. In very many instances further trouble may be found existing, either in the shape of minute spiculated necrosed pieces, as was shown by Dr. Lange at our last meeting, or of larger pieces surrounded

by a spongy suppurating involucrum, or even central spongy necrosis, with or without bone abscess, running dangerously near the joint-line. All of these I have found when least expected. I feel warranted, therefore, in urging this point. In five cases where extensive openings had been made into bone, recourse was had to the suggestion made public by Schede in 1885, and also, in 1884, by Dr. R. T. Morris, of this city, but originated several years earlier by Neuber, of allowing the cavity to fill up with blood, in order that this may organize under the antiseptic dressings applied. Either the wound of the soft parts must be closed with the exception of a small slit, or it must be left entirely open and covered with a layer of gutta-percha tissue, with a hole in it; this is intended to allow the surplus to flow out, and also to prevent the dry bandage from entirely soaking up the clot. In three out of my five cases (which can be increased to five out of seven, counting two private cases) success was obtained in the prompt organization of the clot and the rapid healing of this wound, which under the old plan of packing, heals but slowly from the bottom.

A peculiar painful *enlargement of the internal conayle of the left femur*, with old joint disease, was found in a young man upon which an osteotomy was done with a gouge and chisel, in the expectation of finding a bone abscess; but, though the mass was cut into to a depth of three inches (it being larger than a big apple), nothing abnormal was seen, nor did the microscope show any change in the osseous structure. Nevertheless, the pain ceased and the patient was cured.

Arthrotomy for the removal of a floating sarcoma of the knee was performed in one instance; the case, together with the result of the microscopical examination, was reported to the society at a previous meeting.

A recurring sarcoma of the groin, the size of a large orange, encountered in a middle-aged man, was removed, the common femoral artery and vein being exposed, but not disturbed by the dissection.

Antiseptic irrigation of the knee-joint with 1-to-20 carbolic solution, for chronic hydrarthrosis of the knee, can be reported as successfully done. Likewise a quite extensive *chronic tendo-synovitis of the peroneal tendons* was treated by making an opening above and below, and establishing drainage, without a very satisfactory outcome, the reason being microscopically shown to be (as Koenig has taught us) owing to tubercular infection of the sheath. It will require opening throughout its whole extent, and thorough dissection, scraping, and cleaning, with subsequent iodoform packing, in order to effect a cure.

Beside the elbow-joint resection, practiced for necrosis involving the

articulation, and already noticed, there was one *resection of the shoulder joint* in a young adult by Ollier's anterior incision, which was an unwise selection of an operative method, as it allowed only a very imperfect cleaning out from the joint of the tuberculous synovial membrane. Even the more usual cut across the deltoid would have hardly permitted this to be done satisfactorily. As the patient had then slight (and now more advanced) signs of phthisis pulmonalis, amputation at the shoulder joint will soon be demanded for his relief.

A *resection of the wrist joint* after Lister's method was done for early tuberculous arthritis. In this instance more than usual trouble resulted from the hæmorrhage so often induced by the use of Esmarch's rubber bandage. The case promises well, though the long pressure to control the bleeding caused a slight cellulitis of the forearm. I have since in one instance put into use, with gratifying effect, the suggestion made at this society by Dr. Lange, that, when producing rubber anæmia, one should control the rush of blood into the limb after the removal of the constricting band by the pressure of an assistant's finger on the main artery above the wound, so that the full blood supply is only gradually admitted to the limb, and in this way contraction of the temporarily paralyzed vessels is permitted.

Resection of the astragalo-scapoid articulation was performed four times in two patients for *aggravated flat-foot*. In three of these operations adherence to Ogston's original plan was followed of shaving off, after opening the joint, the articular cartilages with a chisel, and then fastening the bones together by ivory pegs driven through the scaphoid bone into the astragalus. In the remaining operation a little more than the articular cartilage was taken away, and the use of pins was omitted, according to Stokes's method. The rectified position was maintained easily by a plaster bandage without the support of pegs. The result in the first case, now over four months old, is excellent; the last case is too recent to be quoted. I did this for the first time in 1885 in one foot, following, without intending it, Stokes's method—that is to say, removing more than I started to do—and in the second foot I conducted the operation more strictly after Ogston's directions. Only I found that my ivory pegs had been soaked all night in sublimate solution, which rendered them so friable that I could not use them, and so I drove in two gilt nails which had been cleaned by scrubbing and immersion in carbolic solution, but were stained by a previous employment in a compound fracture. Whether it was from this or from some other cause, the foot went sadly wrong, the other, without a peg, progressing happily. Severe tarsal inflammation ensued,

and the young man only got off with a total resection of the scaphoid and astragalus and parts of the cuboid and os calcis, leaving him, however, in the end a serviceable foot, but prolonging his convalescence for months.

Amputation of the leg was done for recurring cancer of the heel by Stephen Smith's method, and gave a beautiful stump. The patient at first declined amputation, and consented only to my doing the Wladimirow-Miculicz operation. She acted wisely, I think, in coming to the decision she finally did, for she was past fifty-five, and the chances of the more complicated operation would have been thereby more lessened, and a relapse would have been more likely to occur.

The rather rare operation of *amputation at the hip joint* was performed by the long anterior and short posterior flap, in a man æt. forty-six, for huge recurring sarcoma of the soft parts of the left thigh. Besides a large mass reaching nearly to the trochanter on the side and behind, there were several small growths lower down on the face of the thigh. The original removal had been done three years ago by the late Dr. Post, of this city. Recurrence took place six months after this operation. The main tumor is now some ten inches in diameter. The hæmorrhage at the hip-amputation was admirably controlled by Lloyd's method, which is to fasten a doubled rubber bandage tightly around the hip, so that it rests on the inner side of the tuberosity of the ischium, its ends being secured above the ilium at about its middle. Pads are placed under the compressing band, over the lower end of the external iliac artery, and over the sciatic notch. It appears to be the best and least hazardous of the many methods advised to control the blood-supply in this high amputation. Next to it I should place Davy's rectal rod. Not more than two or three ounces of blood were lost in this case.

The patient did well without any temperature-elevation for forty-eight hours, when signs of gastritis and tympanites came on, without diarrhœa and he died four days after the operation; at the autopsy the stump was found to be progressing satisfactorily. A large aortic aneurism was found, and the stomach was studded with patches varying in size from a silver quarter to a silver dollar, in which the mucous membrane was blackened and destroyed; their edges were sharply defined and they were of embolic origin, and were supposed to have originated from the aneurism. The intestines were distended and much congested in defined areas.

My own impression is, that the toxic effect of the bichloride can probably be blamed. At least I am conscious that I committed an er-

ror, which I had in other instances sedulously kept in view. After the stump had been finally closed, to make certain that the drainage tubes were free from coagula, I allowed a 1 to 5,000 sublimate solution to flow in through one tube, distend the stump and to flow out through the other tube, when the dressings, (also of sublimate and quite freshly made, *i. e.*, damp) were applied in large quantity. I speak of this injection of a closed wound as faulty, since I can attribute the production of carbolic acid poisoning to a similar method several years since. The gastric appearances somewhat resembled those shown in the case of the death after the operation for removal of the uterine appendages, although there frank peritonitis existed. In this case, to cleanse the vagina after the use of a tampon, a rather strong sublimate solution was directed by the house surgeon. It is well known that absorption of this drug goes on with special aptitude in the genital passages of the female.

I must here confess that, in spite of the many advantages of corrosive sublimate as an antiseptic, more mishaps have occurred to me in using it than were met with in the days of carbolic acid, and that with iodoform, since I have learned to use it discreetly, no harm has come at all beyond an occasional local irritation.

The few remarks that need to be made concerning the *antiseptic methods* usually employed in operations at the New York Hospital can appropriately be set forth here.

All fresh wounds are irrigated lightly with 1 to 5,000 or 1 to 10,000 sublimate solution. Catgut, either sublimated or Kocher's, is used. Iodoform, when used, is either dusted on the line of union of a wound or on the sublimate gauze or peat-bag, which is first placed over the wound. No iodoform gauze (made by rubbing iodoform into a sticky gauze of any kind) is employed except to stuff cavities. Where primary union is sought, it will, if used, often shut up the secretions and provoke trouble. Where special promptness of union is desired, I much like to place over the wound a layer of sublimated, matted spun-glass, a device of Kümmel's. Over the antiseptic gauze is laid a heavy layer of absorbent cotton, and pressure is made with gauze and Canton flannel bandages. Drainage-tubes are of rubber and are kept in sublimate solutions; they are dipped in iodoform dissolved in ether just before being inserted into a wound. They are removed as early as possible, from the second to the fifth day. As to the surgeon himself and his assistants, thorough scouring of the hands with soap and subsequent immersion in a 1 to 1,000 sublimate solution or a 1 to 20 carbolic acid solution is resorted to.

The instruments are scrubbed and boiled, and are then put into carbolic solution. Sponges are washed in soft soap, and are kept in strong sublimate solution (1 to 2,000); all those which have been soiled with bad pus or discharges are at once destroyed.

To return and complete in a few words the list of operations that have taken so long to detail, I beg to speak of two cases of popliteal aneurism treated by *ligature of the femoral artery*, with primary healing of the wound in each instance, but with a slight phlebitis in the leg in one case, and an enormous femoral abscess in the second, from suppuration of the sac due to the patient's leaving the house one month after the operation. I had in the first case reverted to ligature after successfully managing seven cases of aneurism of the lower limbs by Esmarch's bandage, with one failure. The later successes by the ligature and its greater certainty, and increasing trust in antiseptic measures, led me to change my views from the bloodless to the cutting operation. It is too slight an experience from which to arrive at conviction, but it carries home, like my unfortunate Ogston's operation, the feeling, as Dr. Hunt, of Philadelphia, banteringly says, that "antiseptic surgery is *not* cock-sure surgery."

One case of *ununited fracture of the femur*, where the treatment of rubbing the ends together till pain was produced, and then putting the man up in plaster and getting him about on crutches, bearing light weight on the limb, had failed, was *bored by* Brainerd's drills.

A case of a nine-weeks-old *dislocation of the femur into the thyroid foramen* came under my notice in October in a woman weighing over two hundred and fifty pounds. In making efforts to reduce the dislocation under ether, the neck of the femur gave way and allowed ready restoration of the limb to a position parallel to its fellow. I had accidentally done what I proposed to do more exactly with a chisel, had I failed to reduce the dislocation. When the patient left the hospital, the case gave promise of a very satisfactory result.

By mentioning, in closing the list, one case of the very small operation of Cotting's for an *ingrowing toe nail*, it is hoped that the artistic diminuendo will be appreciated. Minor operations have purposely been omitted, save in one or two instances, where their introduction would justify a remark. This operation of Cotting's often fails, and I have learned from my clinical assistant, Dr. Hartley, how to do it better than I formerly did. I now cut off much more of the swollen flesh alongside the nail, plunging the knife downward, and sometimes inclining it toward the center of the toe, so that a generous lump can be taken away; the incision should run well back beyond the matrix. An

iodoform dressing is applied, and over this cotton and a snug bandage, and with this the patient can keep on walking, with the toe exposed in the shoe. In a week, usually, the dressing is changed. Lastly, of the three hundred and ninety-nine patients treated, there were seven deaths (or 1.75 per cent. mortality), and in each of these an operation had been done. In five of the seven, death occurred soon after the operation; in two other cases death resulted some time later, as in the case of the patient with tumor of the brain, who lived two and a half months after the operation, and the patient with hernia, who died three weeks after the operation, from pneumonia and Bright's disease. In the one hundred and five operated on, the mortality was 6.66 per cent.

LAPAROTOMY FOR PERFORATING PISTOL-SHOT WOUND OF THE ABDOMEN—RECOVERY.

By JOHN I. SKELLY, M.D.,

OF POTOMAC, ILL.

CHAS. W. M., bank cashier, æt. 21 years, was brought into my office at 11:30 A. M., March 12, ult., on account of wounds received a few minutes previous. He was helped to a chair but was unable to sit up, and was compelled to lean against the wall to keep from falling off the chair. I discovered that he was bleeding from a wound in the right hip and wounds in both hands. He was pale as a corpse, and complained of pain in the right iliac region. It was impossible to make a satisfactory examination in the office, so I had him conveyed to his home, one mile distant. His clothing was removed, a hypodermic of morphia administered, and a more careful examination made.

Patient very tall; weight 190 pounds; of tubercular cachexia, cavity in right apex; body reasonably well nourished; face, neck and breast covered with dark colored papular eruptions; head and shoulders inclined forward; umbilicus retracted, and abdomen very tender but not at all distended. Six bullet wounds were found—one through terminal phalanx of right little finger; one through proximal phalanx of right middle finger, ranging upward through hand; one through proximal phalanx of left index finger; one just cutting through integument above right